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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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SHIMOKAJI & ASSOCIATES, P.C.
1301 DOVE STREET SUITE 480
NEWPORT BEACH, CA 92660

EXAMINER

GOFF II, JOHN L

ART UNIT PAPER NUMBER

1733

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,219

Applicant(s)

PHAM ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 7-15, 18, 20, 23 and 28-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-6, 16, 17, 21, 22, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) 19, 24 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/21/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I - Species A, claims 1-6, 16, 17, 19, 21, 22, and 24-27, in the replies filed on 10/18/04 and 1/18/05 is acknowledged.

Claim Objections

2. Claims 25 and 26 are objected to because of the following informalities: Claims 25 and 26 require a breather material and release film between the stringer and sheet. However, as described in the specification the breather material and release film are between the stringer and nylon bag, and this is the interpretation to the claims given by the Examiner. It is suggested applicants amend the claims to remove "sheet" and insert therein - - nylon bag - - to overcome the objection. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3-6, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (Specification pages 1 and 2) in view of Schmidt (U.S. Patent 6,849,150).

The admitted prior art discloses a method of joining a stringer and a wing panel comprising providing a stringer having a cured/non-malleable portion, providing a wing panel having an uncured/malleable portion, placing the cured/non-malleable portion of the stringer in contact with the uncured/malleable portion of the wing panel, placing the wing panel and stringer into a vacuum-bag (a breather material and release film may be applied between the stringer, wing panel, and vacuum-bag), removing gas from the vacuum-bag using a pump (including in portions where bridging occurs), placing the vacuum-bag into an auto-clave, and then applying pressure and heat in the autoclave to consolidate and cure the wing panel (Specification pages 1 and 2, paragraphs 2 and 3). The admitted prior art is silent as to including between the stringer and wing panel a sheet. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the admitted prior art to include a coupled adhesive sheet between the uncured and cured contacting portions as was known in the art as shown for example by Schmidt to improve the bond strength between the stringer and wing panel, it being noted the inclusion of the adhesive sheet taught by Schmidt includes adhesive sheets extending beyond the stringer such that bridging from the vacuum-bag would extend from the stringer to the adhesive sheet.

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Regarding claims 3, 4, and 5, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the pressure and heat of the process as a function of the particular adhesive used both in the sheet and the wing panel, the quality of bond produced, etc. as doing so would have required nothing more than ordinary skill and routine experimentation.

Regarding claim 6, as noted above Schmidt teaches the adhesive sheet extending from the stringer. Furthermore, the claimed amount of extension is very small and within an ordinary alignment tolerance such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the exact dimensions of the adhesive sheet as a function of the strength of bond produced (e.g. of the edge of the stringer to the wing panel) as doing so would have required nothing more than ordinary skill and routine experimentation.

Schmidt discloses a method of joining a stringer and a wing panel comprising providing a stringer having an uncured/malleable portion, providing a wing panel having a cured/non-malleable portion, placing the uncured/malleable portion of the stringer in contact with the cured/non-malleable portion of the wing panel with an adhesive sheet coupled therebetween (the adhesive sheet extending from the stringer), placing the wing panel, stringer, and adhesive sheet into a vacuum-bag, removing gas from the vacuum-bag, placing the vacuum-bag into an autoclave, and then applying pressure and heat in the autoclave to consolidate and cure the stringer (Figure 8, 9A, and 9D and Column 3, lines 63-67 and Column 4, lines 1-11 and Column 5, lines 41-47).

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6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art and Schmidt as applied to claims 1, 3-6, 16, and 17 above, and further optionally in view of any one of Ohta et al. (U.S. Patent 4,981,753), Miwa et al. (U.S. Patent 5,648,424), or Tanabe et al. (JP 11207868 and the English abstract).

The admitted prior art and Schmidt as applied above teach all of the limitations in claim 2 except for a specific teaching of the coefficient of thermal expansion of the adhesive sheet, it being noted Schmidt does not require any particular coefficient of thermal expansion nor any particular adhesive and it is unclear if the adhesive sheet taught by Schmidt intrinsically has the claimed coefficient. In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the adhesive film taught by the admitted prior art as modified by Schmidt an adhesive film having a low, e.g. less than 13.7×10^{-6} /degree F, coefficient of thermal expansion such that the adhesive sheet is dimensionally stable as the relationship between the coefficient of thermal expansion and dimensional stability is well taken in the art as shown for example by any one of the optional references to Ohta et al., Miwa et al., or Tanabe et al.

Ohta et al., Miwa et al., and Tanabe et al. are optionally cited as evidence of the well known and conventional relationship between a low coefficient of thermal expansion resulting in improved/high dimensional stability (Column 2, lines 13-21 of Ohta et al. and Column 2, lines 7-9 of Miwa et al. and the English abstract of Tanabe et al.).

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7. Claims 21, 22, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art and Schmidt as applied to claims 1, 3-6, 16, and 17 above, and further in view of Iszczyszyn et al. (U.S. Patent 5,939,007).

The admitted prior art and Schmidt as applied above teach all of the limitations in claims 21, 22, 25, and 26 except for a specific teaching of using a nylon vacuum-bag, it being noted the admitted prior art is not limited to any particular material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the vacuum-bag taught by the admitted prior art as modified by Schmidt a conventional nylon vacuum-bag as shown for example by Iszczyszyn et al. as only the expected results would be achieved.

Iszczyszyn et al. are exemplary in the same art showing the use of a nylon vacuum-bag (Column 11, lines 20-26).

Allowable Subject Matter

8. Claims 19, 24, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 19, the prior art of record fails to teach or suggest a method of curing an object comprising providing an object having a curable portion, coupling a sheet to the curable portion, placing the object and sheet into a container, and removing gas from the container **where bridging occurs between the object and the sheet, the sheet coupled to the object through a layer of Sol-gel.**

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Regarding claims 24 and 27, the prior art of record fails to teach or suggest a method of joining a stringer and a wing panel and curing portions of the wing panel comprising providing a stringer having a cured portion, providing a wing panel having an uncured portion, placing the cured portion of the stringer adjacent the uncured portion of the wing panel with a sheet therebetween, placing the stringer, wing panel, and sheet into a container, and removing gas from the container where bridging occurs between the stringer, wing panel, and sheet, **the sheet formed of titanium and/or having a coat of Sol-gel between the sheet and the wing panel.**

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Conclusion


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John L. Goff



JEFF H. AFTERGUT
PRIMARY EXAMINER
GROUP 1300